

WIDE AREA RADIO PAGING SYSTEM

Abstract

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A system for delivering page messages to paging units over a wide area is provided through multiple transmission systems. The system has a controller for routing page messages to each paging unit through the transmission system to which the paging unit is registered in accordance with a database. Each transmission system sends page messages received from the controller to paging units, and sends periodically a system message having at least a unique identifier for the transmission system. Each paging unit receives system messages of at least one of the transmission systems when located in the coverage area of the transmission system, and receives page messages from the transmission system registered to the paging unit when located in the that transmission system's coverage area. When each paging unit receives a system message sent by a transmission system having an identifier different from the transmission system registered to the paging unit, it sends to the controller at least the identifier from such received system message. The controller updates the registration of the paging in its database to another of the transmission systems in accordance with the identifier received from the paging unit, and sends to the paging unit the new identifier of the transmission system registered to the paging unit. The paging unit operates responsive to the received new identifier from the controller, which may be different from the identifier sent to the controller. Multiple transmission systems having approximately the same coverage areas may operate on different frequencies, and paging units can receive paging and system messages on the frequency of the transmission system registered to the paging unit. Time periods may be recorded in each paging unit when systems messages are not received from the transmission system registered to the paging unit within a predefined interval. Any such periods are transmitted to the controller, and the controller resends such messages which were sent during periods in accordance with another database in the controller maintaining copies of messages routed to the paging unit with the time routed. Thus, paging units can receive page messages which were previously sent during periods of unlikely reception.